

**METHOD AND APPARATUS UTILIZING MONOCRYSTALLINE
INSULATOR****ABSTRACT OF THE DISCLOSURE**

5

A semiconductor apparatus includes a capacitor having a substrate, a conductive element and an insulator. The insulator comprises a substantially monocrystalline material having a relatively high dielectric constant. The semiconductor apparatus may further include a supplemental layer having a depletion zone, suitably comprised of a high-resistivity semiconductor material, for forming a voltage-variable capacitor. To facilitate the growth of the insulator and/or other layers, the various layers are suitably lattice matched. Further, the apparatus may include one or more interface layers to facilitate lattice-matching of the various layers.

10